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| 10/690,486 | 10/20/2003 | Keyvan Sayyah | B-4666NP 620573-9 | 3855 |
| 36716 | 7590 | 07/27/2004 | EXAMINER | |
| LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679 | | | HASAN, MOHAMMED A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2873 | |

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,486

Applicant(s)

KEYVAN SAYYAH ET AL

Examiner

Mohammed Hasan

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1- 56 is/are pending in the application.
- 4a) Of the above claim(s) 20, 35 - 52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 7, 10, 13 - 15, 18, 19, 21, 22 - 27, 31, 53 - 56 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 11, 12, 16, 17, 28 - 30, 32 - 34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/17/04, 11/14/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 – 19, 21 – 34, 53 – 56 are, drawn to a two dimensional modulator, classified in class 359, subclass 237.
 - II. Claims 20, 35 - 52 are drawn to a method of an optically relaying data, classified in class 369, subclass 126.
2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case a novel fabrication technique.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Richard P Berg on July 14, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1 – 19, 21 – 34, 53 – 56. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20, 35 - 52 withdrawn from further

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Oath/Declaration

6. Oath and declaration filed on 10/20/2003 is accepted.

Information Disclosure Statement

7. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 5/17/2004 and 11/14/2003 have all been considered and made of record (note the attached copy of form PTO – 1449).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 - 7, 10, 13 – 15, 18, 19, 21 – 27, 31, 53, and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilbreath et al (6,154,299).

Regarding claim 1, Gilbreath et al discloses (refer to figures 3 - 4) an optical apparatus comprising : a two dimensional array of modulator (100) and /or detector pixels embedded in a flexible or deformable body, the modulation and or detector pixels responding to applied electrical signals to modulator and /or detector pixels responding to applied electrical signals to modulate and reflect light impinging the modulator and/or detector pixels and an optical arrangement for directing an incoming optical beam (110) for an optical transmitter onto a selected one or ones of modulator and / or detector pixels in array and for returning light which is modulated and reflected by pixels to an optical transmitter from which the incoming beam was directed to the optical arrangement (column 4, lines 6 – 65) .

Regarding claim 2, Gilbreath et al discloses, electronic equipment for sensing when light impinges on pixels and for supplying data signals to pixels to cause pixels to reflect the impinging light in accordance with the data signals applied thereto (column 4, lines 42 – 65).

Regarding claim 3, Gilbreath et al discloses, an electrical matrix for connecting and / or detector pixels in array to the electronic equipment (20) (column 3, line 49).

Regarding claim 4, Gilbreath et al discloses, the array of modulator and / or detector pixels is an array of asymmetric Fabry – Perot Multiple Quantum Well devices (200) (column 4, lines 5 – 26).

Regarding claim 5, Gilbreath et al discloses (refer to figure 6) the optical arrangement is a lens (402) which is focuses the incoming beam onto selected one or ones of modulator and /or detector pixels in array (column 5, lines 22 – 29).

Regarding claim 6, the flexible or deformable body is a thermosetting material (column 3, lines 1- 5).

Regarding claim 7, Gilbreath et al discloses, the flexible or deformable body is disposed in a hemispherical configuration (column 5, lines 22 – 29).

Regarding claim 10, Gilbreath et al discloses, each modulator pixel comprises a plurality of AFP MQW devices (column 5, lines 65 – 67).

Regarding claim 13, Gilbreath et al discloses, the modulator and or detector pixels are arranged in an array separated by pixel addressing electrodes arranged in a matrix each modulator pixel having a pair of contacts for connection to separate adjacent addressing electrodes (column 4, lines 42 – 65).

Regarding claim 14, Gilbreath et al discloses (refer to figures 3 - 4) an optical apparatus comprising : a two dimensional array of modulator (100) and /or detector pixels embedded in a flexible or deformable body, the modulation and or detector pixels responding to applied electrical signals to modulator and /or detector pixels responding

to applied electrical signals to modulate and reflect light impinging the modulator and/or detector pixels , an optical arrangement for directing an incoming optical beam (110) for an optical transmitter onto a selected one or ones of modulator and / or detector pixels in array and for directing a second incoming optical beam from a second optical transmitter onto a second selected one or ones of modulator and /or detector pixels in array , the first incoming optical beam being modulated with data, and electronic apparatus for detecting the data on the first incoming optical beam and for modulating the second incoming beam at second selected one or ones of modulator and /or detector pixels in array using data , where the second incoming beam is reflected at second selected one or ones of modulator and /or detector pixels via the optical arrangement (column 4, lines 6 – 65) .

Regarding claim 15, Gilbreath et al discloses , the flexible or deformable body is disposed in a hemispherical configuration (column 5, lines 22 – 29).

Regarding claim 18, Gilbreath et al discloses (refer to figures 3 - 4) an optical apparatus comprising : a two dimensional array of modulator (100) and /or detector pixels embedded in a flexible or deformable body, the modulation and or detector pixels responding to applied electrical signals to modulator and /or detector pixels responding to applied electrical signals to modulate and reflect light impinging the modulator and/or detector pixels , an optical arrangement for directing an incoming optical beam (110) for an optical transmitter onto a selected one or ones of modulator and / or detector pixels in array and for directing a second incoming optical beam from a second optical transmitter onto a second selected one or ones of modulator and /or detector pixels in

array , the first incoming optical beam being modulated with data, and electronic apparatus for detecting the data on the first incoming optical beam and for modulating the second incoming beam at second selected one or ones of modulator and /or detector pixels in array using data , where the second incoming beam is reflected at second selected one or ones of modulator and /or detector pixels via the optical arrangement back to the second optical transmitter (column 4, lines 6 – 65) .

Regarding claim 19, Gilbreath et al discloses, the data on the first incoming optical beam is storing in memory and thereafter the second incoming beam is reflected at second selected one or ones of modulator and/or detector pixels via the optical arrangement back to second optical transmitter modulated according to the data on the first incoming optical beam stored in memory (column 4, lines 6 – 65).

Regarding claim 21, Gilbreath et al discloses (refer to figures 3 - 4) an optical apparatus comprising: a two dimensional array of modulator (100) and /or detector pixels embedded in a flexible or deformable body, the modulation and or detector pixels responding to applied electrical signals to modulator and /or detector pixels responding to applied electrical signals to modulate and reflect light impinging the modulator and/or detector pixels and an optical arrangement for directing an incoming optical beam (110) for an optical transmitter onto a selected one or ones of modulator and / or detector pixels in array and for returning light which is modulated and reflected by pixels to an optical transmitter from which the incoming beam was directed to the optical arrangement (column 4, lines 6 – 65) .

Regarding claim 22, Gilbreath et al discloses , electronic equipment for sensing when light impinges on pixels and for supplying data signals to pixels to cause pixels to reflect the impinging light in accordance with the data signals applied thereto (column 4, lines 42 – 65).

Regarding claim 23, Gilbreath et al discloses , an electrical matrix for connecting and / or detector pixels in array to the electronic equipment (20) (column 3, line 49).

Regarding claim 24, Gilbreath et al discloses , the array of modulator and / or detector pixels is an array of asymmetric Fabry – Perot Multiple Quantum Well devices (200) (column 4, lines 5 – 26).

Regarding claim 25, Gilbreath et al discloses (refer to figure 6) the optical arrangement is a lens (402) which is focuses the incoming beam onto selected one or ones of modulator and /or detector pixels in array (column 5, lines 22 – 29).

Regarding claim 26, The flexible or deformable body is a thermosetting material (column 3, lines 1- 5).

Regarding claim 27, Gilbreath et al discloses , the flexible or deformable body is disposed in a hemispherical configuration (column 5, lines 22 – 29).

Regarding claim 31, Gilbreath et al discloses , each modulator pixel comprises a plurality of AFP MQW devices (column 5, lines 65 – 67).

Regarding claim 53, Gilbreath et al discloses (refer to figures 3 - 4) an optical apparatus comprising: a two dimensional array of modulator (100) and /or detector pixels arranged in a geometric shape, an optical arrangement for directing an incoming optical beam from an optical transmitter onto a selected one or ones of modulator and

/or detector pixels in an array, and a control apparatus (20) for individually controlling the individually addressable modulator and /or detector pixels to (i) reflect light which is modulated and reflected by pixels when the optical beam is from an authorized or friendly source and (ii) inhibit optical reflection by the individually addressable modulator and / or detector pixels when the optical beam is not from an authorized or friendly source (column 4, lines 6 – 65, column 3, line 49).

Regarding claim 54, Gilbreath et al discloses , where the individually addressable modulator and /or detector pixels re each monolithic device (i.e., MQW STRUCTURE 302, column 5, lines 3 - 5).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbreath et al (6,154,299) in view of Pepper et al (US 2004/0075880 A1).

Regarding claim 55 as applied to claim 53, claim 56 as applied to claim 55, Gilbreath et al discloses all of the claimed limitations except detector pixels are each asymmetric Fabry-Perot multiple quantum well devices. However, Pepper et al

discloses a Fabry – perot filter 54 is passing the incident signal 12 (paragraphs 0050 and 0051).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Fabry Perot filter in to the Gilbreath an optical communication system for the purpose of a compact remote communication device with modulation capability as taught by Pepper et al (Paragraph 0007).

Allowable Subject Matter

10. Claims 8, 9, 11, 12 , 16, 17, 28 – 30, 32 - 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to show the flexible or deformable body has a sheet like polymer support element, the plastic support element is relatively plastic at temperature above room temperature, each modulator pixel comprises at least one AFP MQW device and at least one optically activated switch connected in series with the at least one AFP MQW, two optically activated switches connected in series with the at least one AFP MQW device, a back plane switch arrangement and processor, a cache memory for temporarily storing received data from one source , the electronic apparatus modulating a beam from another source with the data stored in the cache.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The closest prior art

He et al (5,130, 843) discloses acousto – optical device using superlattice as the interaction medium.

Tayebati (6,597,490 B2) discloses electrically tunable Fabry-Perot structure utilizing a deformable multi – layer mirror and method of making the same.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammed Hasan whose telephone number is (571) 272-2331. The examiner can normally be reached on M-TH, 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272- 2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Scott J. Sugarman
Primary Examiner